

WHAT IS CLAIMED IS:

1. An electronic component for high frequency power amplification, said electronic component comprising:

a power amplification circuit for amplifying a modulated high frequency signal; and

an output power detection circuit for detecting a magnitude of an output power of the power amplification circuit and outputting a signal for enabling feedback control of the output power of said power amplification circuit,

wherein said output power detection circuit receives a monitor voltage from an impedance matching circuit provided closer to an output of said power amplification circuit via a capacitor element and detects the output power of the power amplification circuit.

2. An electronic component for high frequency power amplification according to claim 1,

wherein a resistor element is connected in series to said capacitor element between said capacitor element and a monitor voltage extraction point in the impedance matching circuit.

3. An electronic component for high frequency power amplification according to claim 1,

wherein said impedance matching circuit comprises a microstrip line comprised of a conductor layer having one end connected to an output terminal of a final-stage amplifier

element of said power amplification circuit and first and second capacitor elements connected between respective portions of the microstrip line and constant potential points, and said monitor voltage extraction point is set between the portion connected to said first capacitor element and the portion connected to said second capacitor element, of said microstrip line.

4. An electronic component for high frequency power amplification according to claim 1,

wherein said output power detection circuit comprises: a first transistor having a control terminal to which the monitor voltage supplied via said capacitor element is applied; a second transistor connected in series to the first transistor; a third transistor current mirror connected to the second transistor; a current-to-voltage conversion transistor connected in series to the third transistor; a bias generation circuit for giving an operating point to the control terminal of said first transistor; and a subtraction circuit for outputting, as a detected signal, a voltage in accordance with a difference between a voltage converted by said current-to-voltage conversion transistor and a voltage given to said first transistor by said bias generation circuit.

5. An electronic component for high frequency power amplification according to claim 1, including a bias circuit

for giving a bias to said power amplification circuit.

6. An electronic component for high frequency power amplification according to claim 5,

wherein said bias circuit is constructed to give such a bias voltage as to cause said first transistor to perform a class-B amplifying operation.

7. An electronic component for high frequency power amplification according to claim 1,

wherein said power amplification circuit and said output power detection circuit are formed over a single semiconductor chip.

8. An electronic component for high frequency power amplification, said electronic component comprising:

a power amplification circuit for amplifying a modulated high frequency signal;

a current detection circuit having a transistor for output detection which receives an input signal to the power amplification circuit and detects a current in the power amplification circuit; and

current-to-voltage conversion means for converting the current detected by the current detection circuit to a voltage,

said electronic component outputting a signal for enabling feedback control of an output power of said power amplification circuit,

wherein said current detection circuit includes: a first transistor for receiving the input signal to said power amplification circuit at a control terminal thereof; a second transistor connected in series to the first transistor; and a third transistor current mirror connected to said second transistor, and said current-to-voltage conversion means has a fourth transistor connected in series to said third transistor.

9. An electronic component for high frequency power amplification according to claim 8,

wherein said current detection circuit includes: a lowpass filter for extracting a dc component of said input signal; and a subtraction circuit for outputting, as a detection signal, a voltage in accordance with a difference between a voltage converted by said fourth transistor and the dc component of said input signal extracted by said lowpass filter.

10. An electronic component for high frequency power amplification according to claim 8, further comprising:

a bias circuit for giving a bias to said power amplification circuit.

11. A wireless communication system comprising:  
an electronic component for high frequency power amplification as recited in claim 1;

a second electronic component including a

transmission/reception switching circuit for performing switching between a signal to be transmitted and a received signal; and

a third electronic component for modulating the signal to be transmitted and inputting the modulated signal to said electronic component for high frequency power amplification,

wherein said third electronic component includes: a gain control amplification circuit capable of controlling an amplitude of the signal to be transmitted which is supplied to said electronic component for high frequency power amplification; and an output level control circuit for comparing a detection signal of an output power of said power amplification circuit which is supplied from said output power detection circuit with an output level indication signal and giving a control signal to said gain control amplification circuit to change a gain.

12. A wireless communication system comprising:

an electronic component for high frequency power amplification as recited in claim 5;

a second electronic component including a transmission/reception switching circuit for performing switching between a signal to be transmitted and a received signal;

a third electronic component for modulating the signal to be transmitted and inputting the modulated signal to said

electronic component for high frequency power amplification;  
and

an output level control circuit for comparing a detection signal of an output power of said power amplification circuit which is supplied from said output power detection circuit with an output level indication signal and giving a control signal to said bias circuit to change a bias given to said power amplification circuit.

13. A wireless communication system according to claim 11,

wherein said electronic component for high frequency power amplification includes: a first power amplification circuit for amplifying a signal in a first frequency band; and a second power amplification circuit for amplifying a signal in a second frequency band, said second electronic component has signal switching means for performing switching between the signal in the first frequency band and the signal in the second frequency band, said third electronic component has a circuit for modulating the signal in the first frequency band and a circuit for modulating the signal in the second frequency band, and said output power detection circuit is provided as a common circuit for said first and second power amplification circuits.